

## CD 25-260

### ATLAS COPCO HEATLESS ADSORPTION DRYER

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#### General Description



The CD dryers are heatless adsorption dryers, designed to remove moisture from compressed air for industrial applications. Their working principle is based on the PSA (Pressure Swing Adsorption) process.

The CD dryers are available in versions to reach pressure dew points down to:

- -20°C / -5°F / ISO\* Class [-:3:-]
- -40°C / -40°F / ISO\* Class [-:2:-]

\*Classification acc. ISO8573-1:2010

They are equipped with a DC1 electronic controller. A PDP sensor (pressure dew point sensor) to lower the energy consumption is available as option. The dryers are designed for automatic & continuous operation, for indoor use and altitude operation up to 2000m (6560 ft.). Inlet air pressures are allowed up to 14bar.

The CD dryers with optional PDP sensor offer a tailor made pressure dew point for the application. The PDP can easily be set upwards from the standard dew point setting of -40°C (-40°F) or -20°C (-5°F), to a set point that perfectly matches your application.

These dryers use durable aluminum extrusions, which serve as pressure vessels.

A uniquely designed valve manifold ensures not only high reliability; also, the low-pressure drop contributes to having a low regeneration air consumption.

## Working Principle

The CD dryers are by default equipped with a durable PD inlet filter, to protect the dryer and adsorption material from impurities.

## DRYING

The air is lead through the 2" bottom manifold which is controlled by 3/2 solenoid valves. Those valves are guaranteeing a smooth switch over even at heavy pressure fluctuations. Afterwards the wet air is getting distributed evenly over all desiccant material by using our specially designed swirl, not just by a market standard strainer which is only feeding the center of the desiccant material with the wet air.



*Fig 1: bottom valve manifold with specially designed swirl*

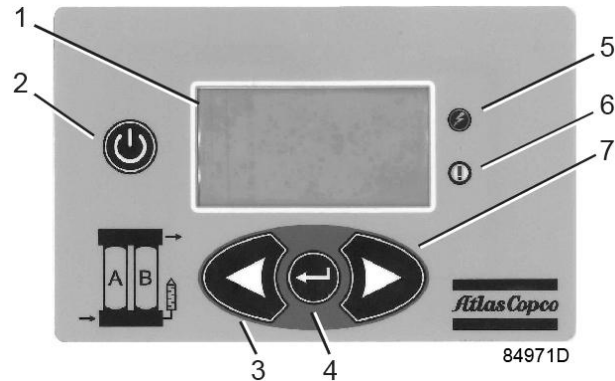
Reaching the top of the extruded vessel, the main dry airflow is getting released directly via a large dimensioned top manifold to the air outlet. Next, it passes the DDp after filter, which is protecting the downstream equipment from the fine desiccant dusts the air could have been collecting while passing through the adsorbent.

## REGENERATION

Part of the dry air outlet flow is taken into the regeneration tower through a pressure nozzle. With this expanded dry air amount, for which the flow is determined by the used nozzle size, we can regenerate the moist desiccant in the tower. By default, the standard nozzle for inlet pressures of 7bar is installed, but 2 additional nozzles are delivered as loose items and are available to install on the unit. This will drive the used purge air consumption thus energy costs down.

After regenerating the vessel, the wet air is released via the blow off valve which is integrated into the largely designed bottom valve manifold. After blow-off, the dryer will switch towers and the inlet compressed air flow will pass through the freshly regenerated dryer tower.

## Controller



The CD dryers are equipped with the DC1. This controller ensures smooth and fully automatic operation of the dryer.

With the DC1, it is possible to:

- Consult current working phase with animated icon
- Show countdown timer explaining when the next phase will start
- Consult current pressure dew point (option PDP sensor required)
- Adjust PDP set point for tailor made PDP (option PDP sensor required)
- Display alarms, counters
- Display service information
- Adjust dryer parameters
- Set synchronization with compressor (freeze function)
- Select either one of the 23 languages
- Change the measurement units (e.g. °C/°F)

## Purge nozzle set

The CD dryers come by default with two additional nozzles, next to the 7bar nozzle that is installed on the machine by default. That way, the nozzle that suits best the operating pressure can be selected, contributing to a low purge loss and energy consumption.

## **Optional Equipment**

1. PDP sensor
2. Upgrade to industrial range filters (PD<sup>+</sup>, DDp<sup>+</sup>)
3. Wall mounting kit (only for simplex variants)

### **Option 1: PDP sensor**

#### *Description.*

This option can drastically reduce the purge air consumption, by extending the cycle time of the dryer when there is no full load.

In case the dryer is not fully loaded, the pressure dew point might become better (lower) than required for the application, because the adsorption material never gets saturated. This is an opportunity where we can reduce the regeneration air consumption by extending the cycle time of the dryer. That way we also keep the pressure dew point stable for the application.

The reduced regeneration air consumption will directly translate into a compressed air energy saving.

### **Option 2: Upgrade to industrial range filters (PD<sup>+</sup>, DDp<sup>+</sup>)**

#### *Description*

Upgrade the professional PD and DDp filters to the industrial range PD<sup>+</sup> and DDp<sup>+</sup> filters.

### **Option 3: Wall mounting kit (only for simplex variants)**

#### *Description*

The wall mounting kit helps to save space. It can be used in the compressor room, but is also perfectly suited to use with dryer that are operating at the point of use.

This option is only available for dryers with one set of extrusions. Not available for duplex, triplex and quadruplex variants.

## **Features and Benefits**

### **Reliable operation**

- To perform at continuous operation or 100% airflow
- Constant pressure dew point of -20% °C/-5 °F, -40°C/-40 °F as standard.

### **Unique manifold/valve design**

- Large pipe diameter minimizes pressure drop for advanced energy savings
- Electronically operated 3/2 valve reduces risk of breakdowns and offers reliable control during airflow fluctuations.
- Service openings
- Clever strainer design minimizes pressure drop, regeneration times and energy consumption

### **Advanced control and monitoring system**

- 4-line display in 23 languages
- Service alarms and general alarm relay
- Monitors all parameters to ensure maximum reliability
- Allows for synchronization with the compressor
- Service indications
- Optional pressure dew point sensor for Dew point Dependent Switching

### **Advanced options**

- Pressure dew point sensor
- Wall mounting kit